

**13.** The semiconductor structure of claim **10**, wherein the compositionally graded Group III-nitride alloy comprises  $\text{In}_x\text{Al}_{1-x}\text{N}$  that is graded between two portions of the Group III-nitride alloy between two values of  $x$ , where  $0.0 \leq x \leq 1.0$ .

**14.** The semiconductor structure of claim **13**, wherein the Group III-nitride alloy layer comprises  $\text{In}_x\text{Al}_{1-x}\text{N}$ , where  $0.6 \leq x \leq 0.8$ .

**15.** A photovoltaic layer for a solar cell comprising:

a layer of a compositionally graded Group III-nitride alloy.

**16.** The photovoltaic layer for a solar cell of claim **15**, wherein the compositionally graded Group III-nitride alloy layer comprises  $\text{In}_x\text{Ga}_{1-x}\text{N}$  that is graded between two portions of the Group III-nitride alloy layer between two values of  $x$ , where  $0.0 \leq x \leq 1.0$ .

**17.** The photovoltaic layer for a solar cell of claim **16**, wherein the compositionally graded Group III-nitride alloy layer comprises  $\text{In}_x\text{Ga}_{1-x}\text{N}$ , where  $0.25 \leq x \leq 0.45$ .

**18.** The photovoltaic layer for a solar cell of claim **15**, wherein the compositionally graded Group III-nitride alloy layer comprises  $\text{In}_x\text{Al}_{1-x}\text{N}$  that is graded between two portions of the Group III-nitride alloy layer between two values of  $x$ , where  $0.0 \leq x \leq 1.0$ .

**19.** The photovoltaic layer for a solar cell of claim **18**, wherein the compositionally graded Group III-nitride alloy layer comprises  $\text{In}_x\text{Al}_{1-x}\text{N}$ , where  $0.6 \leq x \leq 0.8$ .

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